

On a New Genus of Hawaiian Chironomids.*

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Only two species of this abundant family have hitherto been described from the Hawaiian Islands, namely, *Chironomus hawaiiensis* Grims, and *Tanytarsus lacteiclavus* Grims.; two other genera, *Orthocladius* and *Ceratopogon* being also represented, but none are described. The endemic genus under discussion is so far represented by two species, the larger occurring on both islands of Hawaii and Maui, and the smaller on Kanaï. The latter island, owing doubtlessly to its greater age and isolation, has produced a somewhat distinctive fauna from the rest of the archipelago, and this characteristic again presents itself in the peculiar sexual structures of the Kanaïan species.

The simple palpal and antennal characters of this endemic genus suggest Clunionine affinities, as represented by *Halirytus* and *Eretmoptera*. But the apparently still plastic condition of the palpi has led me to attach less importance to this similarity, and its proper location would appear to be in the *Chironominae*. The venation is extremely like that of *Thalassomyia*, and the larval habits of the latter appear to be similar: the peculiar spatulate and pectinate structure of the male claw in the Kanaïan species, has a parallel apparently in *Scopelodromus*, but its real affinities are undoubtedly with *Telmatogeton*. Besides agreeing with the latter in general larval and adult characters, the remarkable obliquely-truncate formation of the pupal abdomen, with its peculiar terminal plate, is practically identical with that of *Telmatogeton* as figured by Schiner.** I therefore propose to place it near *Telmatogeton*, erecting for it the new genus *Charadromyia*. Should this position prove to be correct, its presence on this isolated archipelago in the North

*This is part of the paper, "Biological Notes on Hawaiian Diptera," presented by Mr. Terry as Presidential Address, Dec. 15, 1910. The manuscript of the address was not available for publication at the time of publication of the Proceedings for 1910, as Mr. Terry had taken it away with him on a vacation trip to England. After his demise, some manuscripts and notes were returned, among them some portions of his address were found, but not in complete form for publication. Mr. Muir has arranged this much of them for publication. It seemed desirable to do so, being descriptions of an interesting new genus and two new species, with biologic notes.—[Ed.]

**Novara Reise Zool., 1868, Bd. II, pl. II, ff, 1e, 1f.

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Pacific, becomes less remarkable upon learning that *Telmatogeton alaskensis* Coq. is recorded from Alaska, Oregon and California. Strangely enough the only other recorded representatives of this allied genus (*T. sanctipauli* Schin.) occurs on the island of St. Paul (New Amsterdam) in the South Indian ocean.

Charadromyia nov. gen.

Type *C. torrenticola*.

This genus is evidently allied to *Telmatogeton*, differing in the following characters: Front not deeply excavated; palpi normally two-jointed, the basal large and bulbous, the apical smaller and more elongate. Apex of each tarsal joint bears a pair of minute ventrolateral spines; claws not furcate at extreme tip, either simple in both sexes or bearing a peculiar spatulate comb in the male; 4th tarsal joint equal to 3rd. Wings only slightly longer than abdomen; auxiliary vein starting from wing base, but not reaching the costa; 3rd and 4th longitudinal veins connected by oblique cross-veins; furcation of 5th longitudinal vein before the middle of wing; 6th well defined, 7th obsolescent.

DIAGNOSIS OF SPECIES.

1. *C. torrenticola*. Large, black or rusty black; claws of male simple, basal antennal joint longer than broad, terminal joint much longer than the three preceding.
2. *C. abnormis*. Small, pruinose; claws of male complex; basal antennal joint not longer than broad, terminal joint not longer than the three preceding.

Charadromyia torrenticola sp. nov.

Length 5.3mm.; wing 5mm.

♂ Head, thorax and abdomen velvety black, the body moderately pruinose especially the pronotum; legs, scutellum, postscutellum and wings rusty-black, humeral angles often dull testaceous. The small cubital head deeply inserted and hidden by the projecting mesonotum. Eyes small, oval, non-emarginate and widely separated by the projecting face, ocelli absent. Antennae short and simple, about equal to width of head, (identical in both sexes), 7-jointed and a basal ring-joint, 1st very large and thickened, length about one and the breadth, bearing several stout hairs and setae; 2nd much smaller and showing

by the presence of a median constriction evidence of the fusion of two segments, 3rd-6th small and sub-moniliform, the terminal 7th large and conical, bearing a few scattered bristles and longer than the sum of the three preceding. Maxillary palpi simple and two-jointed, bearing several fine scattered hairs, basal joint large, bulbous, apical smaller and somewhat falcate* Mesonotum large, the anterior margin arched and overhanging the head, scutellum sub-elliptical, post-scutellum large. Abdomen 8-segmented, narrow and elongate. Hypopygium forcipiform, bearing a pair of falcate, two-pointed claspers.

Hab. Types ♂ and ♀ Nahiku, Maui (400-800 ft.) also Lahaina, Maui (1000 ft.); Kohala, Hawaii (1200-1500 ft.) Terry coll.

In rapid streams and water-falls.

This species is a decidedly characteristic inhabitant of certain mountain streams in Maui and Hawaii. The black-winged, active adults continually dancing over the rushing water, fre-

*This organ appears to be very plastic, exhibiting considerable variation of form, regardless of sex; one specimen examined possessing a single-jointed left palp, the right being normal.

Legs long and slender (anterior pair used in walking); tarsi five-jointed and cylindrical. Anterior: 1st tarsal joint nearly three times as long as 2nd, which is equal to the sum of 3rd and 4th. Median: 1st tarsal joint nearly three times as long as 2nd, which is hardly equal to the sum of 3rd and 4th. Posterior: 1st tarsal joint rather more than twice as long as 2nd, which is equal to the sum of the 3rd, 4th and 5th. Claws well developed and simple in both sexes, empodia large and pectinately plumose; pulvilli absent. Median and lateral lobes of apical tarsal joint large.

Wings large, reaching a little beyond the apex of abdomen, membrane somewhat coriaceous, posterior margin parallel with the costal, costa bearing numerous minute hairs; anal angle rectangular, mid-cross-vein arising slightly before the middle, auxiliary becoming obsolescent just before reaching the costa; 1st longitudinal bearing a few scattered hairs, and extending beyond the middle of the costa, forming an acute-angle at point of junctures; 2nd longitudinal absent; 3rd and 4th longitudinal united by oblique mid-cross-vein; furcation of 5th longitudinal before middle and forming an acute angle, the lower branch curved; 6th longitudinal well defined becoming obsolescent just before reaching the wing margin; anal angle rectangular.

♀ Very similar to the male, with the following differences: Legs shorter, the tarsal ratio however is the same; wings not extending beyond the apex of abdomen; the abdomen stout, parallel-sided, posterior extremity pointed, the terminal (8th segment) triangular in dorsal aspect, apically pointed, and bearing laterally a pair of flattened appendages. The ventral terminal segment is also triangular and also bears a pair of small flattened appendages.

quently getting caught in the spray but apparently none the worse for their temporary submergence. The females are less abundant than the males, the usual ratio being about 1 to 5.

Egg. Ovoid, the micropylar end more acuminate, bright yellow, becoming olivaceous as the contained larva develops; chorion shiny, micropyle conspicuous; length .3mm., width .2mm.

These eggs are deposited just below the water surface, on the rocks or submerged timber. They are placed in single layers, often consisting of several thousands in a mass, evidently the product of several females. The micropylar end is always uppermost and no gelatinous medium surrounds them.

Larva—The larva is elongate and cylindrical, of the usual Chironomid type, and closely resembling that of *Telmatogeton*, judging from Johannsen's figure.* The body pale greenish when young, becoming olivaceous later; full-grown larva 18-20mm. Head brown, darker along clypeal suture, oval, no eyes present; antennae very small, each consisting of a single tubular segment bearing a pair of pointed papillae; labium broadly triangular, bearing a broad apical tooth and seven lateral ones; mandibles well developed, each bearing five teeth. First segment of thorax longer than the following two (which are equal) and bearing a pair of prolegs armed with hooklets and setae. Abdomen with first eight segments cylindrical and bare, the ninth and terminal bearing a pair of prominent prolegs, each well armed with a criclet of hooklets.

The larvae construct tough silken galleries over the rock or other submerged surfaces, preferably where the water rushes over the rock ledges with greatest force. These whitish silken galleries are quite noticeable in these situations, and it is astonishing that they are not often beaten to pieces after a heavy mountain shower.

Pupa. Thorax and wing-sheaths brownish, abdomen and legs olivaceous; length 7mm.; the last abdominal segment terminates obliquely and abruptly in a large sucker-like disk, resembling in this character *Telmatogeton*.

*New York Mus. Bull. 86; Entom. 23, pl. xxxiv, f. 12-13 (no description.)

